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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Patent Application of:

Inventor(s)	:	Gilbert Ho Yin Tsang, et al
Filed	:	10/11/2000
Serial No.	:	09/686,120
Confirmation No.	:	4933
Group Art Unit	:	2611
Examiner	:	Saltarelli, Dominic D.
Docket Number	:	SNY-P3965
Title	:	IP Address Discovery for Cable Modem in Set Top Box

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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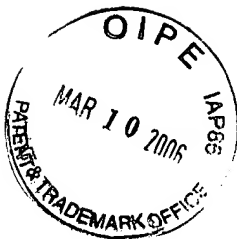[X]   Receipt post card.

Respectfully submitted,

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Dated: 3/7/2006

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Serial No.: 09/686,120

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES

In Re Patent Application of:

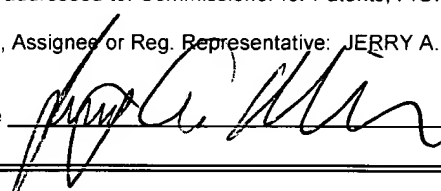|		
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CERTIFICATE OF MAILING

I hereby certify that this correspondence (and all items referenced as included herewith) is, on the date shown below, being deposited with the U.S. Postal Service as first class mail with sufficient postage in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Appellant, Assignee or Reg. Representative: JERRY A. MILLER   Reg. No. 30,779

Signature _____ Date 3/7/06

APPEAL BRIEF

This appeal brief is submitted in **triplicate** in response to the Office Action dated December 1, 2005. Reconsideration and allowance of all claims at issue are respectfully requested.

The fee for this appeal brief is being paid by [X] credit card payment form [ ] check [ ] deducted from deposit account number 501267. The Commissioner is authorized to deduct any underpayment or credit any overpayment for this Appeal Brief or the earlier filed Notice of Appeal to deposit account number 501257.

REAL PARTY IN INTEREST

The real party in interest in this appeal is the assignee(s) of this application - Sony Corporation and Sony Electronics, Inc.

RELATED APPEALS AND INTERFERENCES

None known to the undersigned.

STATUS OF CLAIMS

The present claims were the subject of a pre-appeal brief conference, the result of which was reopening of prosecution. The pre-appeal brief remarks of August 15, 2005 may be informative in that the Lim reference and DHCP related technology are asserted in the current rejection, certain aspects of which were addressed in the pre-appeal brief remarks.

Claims 1-37 and 58-91 stand rejected under 35 U.S.C. §103(a).

Claims 38 – 57 are currently withdrawn as a result of an election/restriction requirement.
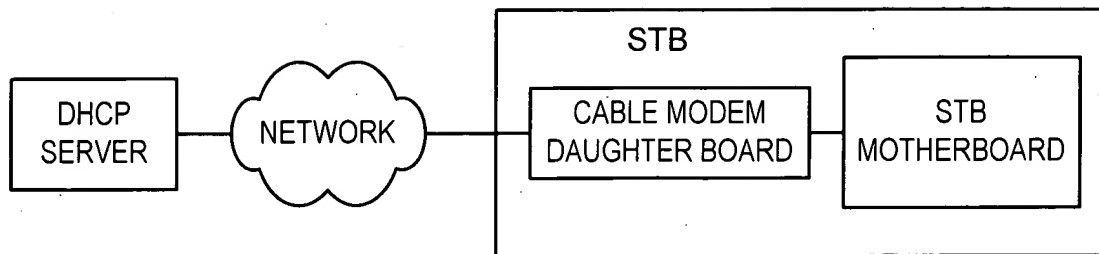
STATUS OF AMENDMENTS FILED SUBSEQUENT TO FINAL REJECTION

No amendments are outstanding.

SUMMARY OF CLAIMED SUBJECT MATTER

The following summary is supplied in compliance with the requirements of the appeal rules. The undersigned wishes to note that this summary is provided merely as an aid to the Board in rapidly understanding the invention and the issues relating to this appeal and do not supersede what the claims actually state (69 Fed, Reg, 155 (Ayg, 2004). As such, this summary should not be construed to limit the invention in any way.

Appellant wishes to begin this discussion with reference to the following illustration, that will be useful when later considering the role of a DHCP server:

```
┌─────────────────────────────────────────────────────────────────┐
│                            STB                                    │
│                     ┌──────────────────┐   ┌──────────────────┐   │
┌──────────┐  ╭─────────╮   │  CABLE MODEM     │   │      STB         │   │
│  DHCP    │──│ NETWORK │───│  DAUGHTER BOARD  │───│  MOTHERBOARD     │   │
│  SERVER  │  ╰─────────╯   │                  │   │                  │   │
└──────────┘           │   └──────────────────┘   └──────────────────┘   │
                       └─────────────────────────────────────────────────┘
```

This illustration does not appear in the present application, but is provided to place the asserted references in proper context for consideration of the presently rejected claims (The claimed invention appears as the STB in this illustrative example). In this illustrative embodiment, the issue being addressed is how the STB (set-top box) Motherboard learns the IP (Internet protocol) address of the Cable Modem in order to communicate therewith. The Cable Modem may receive an IP address by any number of mechanisms including use of the illustrated DHCP (Dynamic Host Configuration Protocol) server. In so doing, the cable modem acts as a DHCP client to the DHCP server.

Independent Claim 1:

In claim 1, a Set-Top Box (Fig. 1, 100; p. 7, lines 13-29) is configured with a modem (Fig. 1, 110; p. 7, lines 13-29) and a Main Circuit Board (Fig. 1, 120; p. 7, lines 13-29) where the Main Circuit Board is connected to the modem via an interconnection (Fig. 1, 130; p. 7, lines 13-29). This claim characterizes a method of enabling the Main Circuit Board to determine the IP address of the modem. At the modem, the method calls for periodically broadcasting (Fig. 2, 200) a Discovery Packet (Fig. 3, 300; Fig. 4, 400; Table 1) over the interconnection from the modem to the Main Circuit Board. The Discovery Packet is broadcast to a broadcast address (Table 1) that can be received by the Main Circuit Board. The Discovery Packet comprises at least the IP address of the modem in order to permit the Main Circuit Board to learn the modem's IP address (p. 8, line 6 – p. 9, line 12). The claim further calls for, at the Main Circuit Board, monitoring the interconnection for receipt of broadcast Discovery Packet addressed to the broadcast address. When it receives the broadcast Discovery Packet addressed to the broadcast

address at the Main Circuit Board from the modem over the interconnection, it ascertains the IP address of the modem from the broadcast Discovery Packet (p. 9, lines 3-6).

Independent Claim 17:

Claim 17 is an apparatus claim for a Set-Top Box (Fig. 1, 100; p. 7, lines 13-29) containing a modem (Fig. 1, 110; p. 7, lines 13-29) and a Main Circuit Board (Fig. 1, 120; p. 7, lines 13-29). Means, residing within said modem, is/are provided for periodically transmitting a Discovery Packet (Fig. 3, 300; Fig. 4, 400; Table 1) from the modem to the Main Circuit Board by addressing the Discovery Packet to a broadcast address (Table 1) monitored by a programmed processor (p. 7, lines 27-29) residing on said Main Circuit Board via the interconnection (Fig. 1, 130; p. 7, lines 13-29). Such means can be read upon Ethernet circuits, custom or semi-custom integrated circuits, programmed processors and the like communicating using Ethernet, USB, PCI bus, etc. (p. 7, lines 17-29, p. 13, lines 12-21). The wherein the Discovery Packet comprises at least an IP address (p. 8, line 6 – p. 9, line 12) of the modem in order to permit the Main Circuit Board to learn the modem's IP address (p. 9, lines 3-6).

Independent Claim 34:

In apparatus claim 34, a Set-Top Box (Fig. 1, 100; p. 7, lines 13-29), is comprised of a modem (Fig. 1, 110; p. 7, lines 13-29), Main Circuit Board (Fig. 1, 120; p. 7, lines 13-29) having a first processor (p. 7, lines 27-29), a modem having a second programmed processor (p. 7, lines 27-29) and a display (Fig. 1, 150; p. 7, lines 13-29). The Main Circuit Board has the first processor and is interconnected to the modem via an interconnection (Fig. 1, 130; p. 7, lines 13-29), wherein the Main Circuit Board monitors the interconnection for packets addressed to a broadcast address (p. 9, lines 3-6). The second programmed processor, residing within the modem, is for transmitting a Discovery Packet (Fig. 3, 300; Fig. 4, 400; Table 1) from said modem to the broadcast address (Table 1) monitored by said Main Circuit Board via the interconnection at intervals of approximately 30 seconds (p. 9, lines 2-3). Wherein, the Discovery Packet comprises an IP address (p. 8, line 6 – p. 9, line 12) of the modem, and an encrypted ten character ascii authentication code (p. 9, lines 5-12) and the Main Circuit Board,

upon receiving the Discovery Packet, inspects the authentication code to assure that the IP address in the Discovery Packet originated at the modem. The Discovery Packet further comprises a four byte integer status code indicative of a running status of the modem (p. 11, lines 21-23; p. 9, lines 7-10). The display (Fig. 1, 150), coupled to the Main Circuit Board, displays the status of the modem (p. 9, lines 13-26) determined by the Main Circuit Board by reading the four byte integer status code of the Discovery Packet.

Independent Claim 58:

Claim 58 is an apparatus claim for a Set-Top Box (Fig. 1, 100; p. 7, lines 13-29) that contains a managed component (Fig. 1, 110; p. 7, lines 13-29, p. 8, lines 1-6) and a Main Circuit Board (Fig. 1, 120; p. 7, lines 13-29) interconnected to the managed component via an interconnection (Fig. 1, 130; p. 7, lines 13-29). The apparatus has means, residing within said managed component, for periodically transmitting a Discovery Packet (Fig. 3, 300; Fig. 4, 400; Table 1) from said managed component to the Main Circuit Board by addressing the Discovery Packet to a broadcast address (Table 1) monitored by said Main Circuit Board via the interconnection. Such means can be read upon Ethernet circuits, custom or semi-custom integrated circuits, programmed processors and the like communicating using Ethernet, USB, PCI bus, etc. (p. 7, lines 17-29, p. 13, lines 12-21). The Discovery Packet comprises at least an IP address (p. 8, line 6 – p. 9, line 12) of the managed component in order to permit the Main Circuit Board to learn the managed component's IP address (p. 9, lines 3-6).

Independent Claim 66:

In the apparatus claim 66, a Set-Top Box (Fig. 1, 100; p. 7, lines 13-29) contains first and second managed components (such as 110 of Fig. 1; p. 7, lines 14-17), a Main Circuit Board (Fig. 1, 120; p. 7, lines 13-29) interconnected to the first and second managed components via an interconnection (Fig. 1, 130; p. 7, lines 13-29). The apparatus has means, residing within each of the first and second managed components, for periodically transmitting a Discovery Packet (Fig. 3, 300; Fig. 4, 400; Table 1) from each of the managed component to the Main Circuit Board by addressing the Discovery Packet to a broadcast address (Table 1) monitored by the Main Circuit

Board via the interconnection (Fig. 1, 130; p. 7, lines 13-29). Such means can be read upon Ethernet circuits, custom or semi-custom integrated circuits, programmed processors and the like communicating using Ethernet, USB, PCI bus, etc. (p. 7, lines 17-29, p. 13, lines 12-21). The Discovery Packet comprises at least an IP address (p. 8, line 6 – p. 9, line 12) of the managed component from which it was transmitted in order to permit the Main Circuit Board to learn each managed component's IP address (p. 9, lines 3-6).

Independent Claim 76:

Claim 76 is a method claim for a Set-Top Box (Fig. 1, 100; p. 7, lines 13-29) that provides a modem (Fig. 1, 110; p. 7, lines 13-29) having a first internal programmed processor (p. 7, lines 27-29) and a Main Circuit Board (Fig. 1, 120; p. 7, lines 13-29) having a second programmed processor (p. 7, lines 27-29). The first and second programmed processors are separate physical devices. The modem is connected to the Main Circuit Board via an interface and periodically broadcasts (Fig. 2, 200) a Discovery Packet (Fig. 3, 300, Fig. 4, 400, Table 1) from the modem to the Main Circuit Board over the interface. The Discovery Packet is addressed to a broadcast address (Table 1) that can be received by the Main Circuit Board. The Discovery Packet comprises at least the IP address of the modem (p. 8, line 6 – p. 9, line 12) in order to permit the Main Circuit Board to learn the modem's IP address (p. 9, lines 3-6). At the Main Circuit Board, the Set-Top Box monitors the interface for receipt of broadcast Discovery Packet addressed to the broadcast address and receives the broadcast Discovery Packet addressed to the broadcast address at the Main Circuit Board from the modem over the interface. It also ascertains the IP address of the modem from the broadcast Discovery Packet (p. 9, lines 3-6).

Independent Claim 90:

Claim 90 describes a Set-Top Box (Fig. 1, 100; p. 7, lines 13-29) that contains a modem (Fig. 1, 110; p. 7, lines 13-29) and a Main Circuit Board (Fig. 1, 120; p. 7, lines 13-29) interconnected to the modem (Fig. 1, 110; p. 7, lines 13-29) via an interconnection (Fig. 1, 130; p. 7, lines 13-29). Means, residing within the modem periodically transmits a Discovery Packet (Fig. 3, 300; Fig. 4, 400; Table 1) from the modem to said Main Circuit Board, wherein the

means for periodically transmitting a Discovery Packet comprises a programmed processor (p. 7, lines 27-29). The Discovery Packet comprises at least an IP address (p. 8, line 6 – p. 9, line 12) of the modem.

Independent Claim 91:

In Claim 91, a Set-Top Box (Fig. 1, 100; p. 7, lines 13-29) is comprised of a modem (Fig. 1, 110; p. 7, lines 13-29), a Main Circuit Board (Fig. 1, 120; p. 7, lines 13-29) interconnected to the modem (Fig. 1, 110; p. 7, lines 13-29) via an interconnection (Fig. 1, 130; p. 7, lines 13-29), a programmed processor, and a display (Fig. 1, 150) that operate in a manner similar to that described in Claim 91. In this claim the Discovery Packet (Fig. 3, 300; Fig. 4, 400; Table 1) is further required to transmit the Discovery Packet at intervals of approximately 30 seconds (p. 9, lines 2-3), has an IP address (p. 8, line 6 – p. 9, line 12) of the modem and an encrypted (p. 11, lines 21-23; p. 9, lines 7-10) ten character ascii authentication code (Table 1). The Main Circuit Board, upon receiving the Discovery Packet inspects the authentication code to assure that the IP address in the Discovery Packet originated at the modem (p. 9, lines 5-12). The Discovery Packet further comprises a four byte integer status code indicative of a running status of the modem (Fig. 4, 440; p. 11, lines 13-23). The display (Fig. 1, 150) is coupled to the Main Circuit Board, displaying the status of the modem (Fig. 1, 110; p. 7, lines 20-22).

Dependent Claims Separately Argued:

Claims 14 and 29 add the feature that modem includes a processor that controls its operation (p. 7, lines 27-29).

Claims 15, 74 and 89 specify that UDP is used for the Discovery Packet (p. 8, lines 20-21).

Claim 32 add the feature that modem includes a processor that controls its operation (p. 7, lines 27-29).

Claims 7, 9, 23, 25, 26, 64 and 82-84 add various aspects of the status code (Fig. 4, 440; p. 11, lines 13-23; p. 9, lines 7-10).

Claims 8, 10, 24 and 65 indicate that the status code is encrypted (p. 11, lines 21-23; p. 9, lines 7-10).

Claims 82-85 also call out various aspects of the status code (Fig. 4, 440; p. 11, lines 13-23; p. 9, lines 7-10).

Claims 11 and 86 add a display of the status on the Main Circuit Board's display (Fig. 1, 150).

Claims 4, 6, 16, 20, 22, 61, 63, 79 and 81 indicate that the status code is encrypted (p. 11, lines 21-23; p. 9, lines 7-10).

Claim 31 adds a display of the status on the Main Circuit Board's display (Fig. 1, 150).

Claim 33 indicates that a network device is coupled to the Main Circuit Board and transmits Discovery Packets in the same manner previously described (p. 11, lines 9-11; p. 13, lines 9-11).

Claim 69 indicates that the status code is encrypted (p. 11, lines 21-23; p. 9, lines 7-10).

Claims 70 and 71 add various aspects of the status code (Fig. 4, 440; p. 11, lines 13-23; p. 9, lines 7-10).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

All shorthand references to the cited art are consistent with those used in the Office Action and all references are of record.

1.   The rejection of claims 1-3, 5, 12-15, 17-19, 21, 27-30, 32, 58-60, 62, 74-78, 80, and 87-90 as unpatentable over Lim, in view of DOCSIS, DHCP and Slezak, and further in view of two assertions of Official Notice (for certain claims)

2.   The rejection of claims 7-10, 23-26, 64, 65 and 82-85 as unpatentable over lim, DOCSIS, DHCP, and Slezak as applied above and further in view of Koperda, and further in view of five assertions of Official Notice (for certain claims)

3.   The rejection of claims 11 and 86 as unpatentable over Lim, DOCSIS, DHCP, Slezak and Koperda as applied to claims 7 and 82, and further in view of Rahamim.

4.   The rejection of claims 4, 6, 16, 20, 22, 61, 63, 79 and 81 as unpatentable over Lim, DOCSIS, DHCP, and Slezak as applied to claims 2, 3, 5, 19, 21, 59, 62, 77 and 80 and further in view of Blumenau.

5.   The rejection of claim 31 as unpatentable over Lim, DOCSIS, DHCP and Slezak as applied to claim 17 and further in view of Rahamim.

6.   The rejection of claim 33 as unpatentable over Lim, Docsis, DHCP and Slezak as applied to claim 18 and further in view of Lee and Blumenau.

7.   The rejection of claims 34-37 and 91 as unpatentable over Lim in view of DOCSIS, DHCP, Slezak, DeBettencourt, Caputo, Blumenau, Koperda, Bernardini and Rahamim (ten references total with approximately 9 pages of explanation).

8.   The rejection of claims 66, 72 and 73 as unpatentable over Lim in view of DOCSIS, DHCP, Slezak and Lee.

9.   The rejection of claims 67 and 68 as unpatentable over Lim, DOCSIS, Slezak and Lee as applied to claim 66, and further in view of Caputo.

10.   The rejection of claim 69 as unpatentable over Lim, DOCSIS, DHCP, Slezak, Lee and Caputo as applied to claim 67, and further in view of Blumenau.

11.   The rejection of claims 70 and 71 as unpatentable over Lim, DOCSIS, DHCP, Slezak, Lee, Caputo and Blumenau as applied to claim 69 and further in view of Koperda, and in addition to Official Notice.

GROUPING OF CLAIMS

Group 1 – claims 1-3, 5, 12, 13,17-19, 21, 27-28, 30, 58-60, 62, 75-78, 80, 87, 88 and 90.

Group 2 – claims 14 and 29.

Group 3 – claims 15, 74 and 89.

Group 4 – claim 32.

Group 5 – claims 7, 9, 23, 25, 26, 64, and 82-84.

Group 6 – claims 8, 10, 24 and 65

Group 7 – claims 82 through 85.

Group 8 – claims 11 and 86.

Group 9 – claims 4, 6, 16, 20, 22, 61, 63, 79 and 81.

Group 10 – claim 31.

Group 11 – claim 33.

Group 12 – claim 34-37 and 91.

Group 13 – claims 66-68 72 and 73.

Group 14 – claims 69.

Group 15 – claims 70 and 71.

ARGUMENTS

As a preliminary matter, Appellant notes for the Board's consideration that the present rejection makes extensive use of large numbers of references and extensive use of Official Notice and inherency in making rejections. The extensive use of Official Notice appears throughout the history of the present prosecution. The present Office Action uses as many as six to ten references in combination at times along with extensive use of inherency and Official Notice to plug holes that could not be otherwise filled. Appellant notes that MPEP 2144.03 provides that '*in limited circumstances, it is appropriate for an examiner to take official notice of facts not in the record or to rely on "common knowledge" in making a rejection, however such rejections should be judiciously applied. .... Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known.*' (emphasis added).

Appellant further notes that reliance on large numbers of references to formulate a rejection has in fact been considered by the courts on multiple occasions to actually be an indication of non-obviousness (See, e.g., *Bandag Inc. v. Lewis General Tires, Inc.*, 207 USPQ 745; *Eastern Rotorcraft Corp. v. United States*, 150 USPQ 124; *In re Spring Assemblies and Components Thereof, and Methods for their Manufacture*, 216 USPQ 225), and further submits that this is the case in the present application.

Appellant further notes as a preliminary matter that the basic group of three or four main references are deficient in combination to establish *prima facie* obviousness of any claim, as will be explained in detail below.

Group 1

Regarding the rejection of claims 1-3, 5, 12, 13,17-19, 21, 27-28, 30, 58-60, 62, 75-78, 80, 87, 88 and 90, Appellant respectfully requests reversal of the rejection by the Board for the following reasons. First consider each of the cited references individually and then their combination will be addressed.

The Lim Reference:

- The Office Action essentially asserts in the paragraph spanning pages 2 and 3 of the Office Action that the Main Circuit Board inherently determines the IP address of the modem to communicate over the Internet. This assertion is not backed up by evidence of record, and it is noted that Lim contains no teaching, suggestion or inference regarding any mechanism for a Main Circuit Board to learn an IP address of a connected Cable Modem.

- For the Lim reference to inherently contain this feature as alleged, it must be "clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Continental Can Co. USA v. Monsanto Co., 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991). While this case is related to the issue of anticipation, it is believed clear that the definition of "inherency" is accurate for purposes of obviousness considerations as well. The assertion of inherency is unsupported by any evidence advanced in the Office Action. Moreover, Appellant submits that by providing dedicated control and communication connections between a computer and an associated modem, the computer may utilize the modem to communicate over the Internet without knowledge of the modem's IP address. Hence, there is no inherency.

- Appellant agrees that Lim fails to disclose periodically broadcasting a discovery packet, etc. as stated on the first full paragraph of page 3.

The DOCSIS Reference:

- The Office Action asserts that fig. 3-3 of DOCSIS indicates that the cable modem includes an internal DHCP server. This is technically erroneous. (The undersigned verified this by consultation with an engineer employed by the assignees who is knowledgeable in DOCSIS and DHCP, but is also evident from inspection of DOCSIS and a basic understanding of DHCP). "DHCP" is shown in fig. 3.3 as a process of the Cable Modem stack, but it is a DHCP <u>client</u> process (not server). It is noted that both the Cable Modem (client) and the CMTS (server) include a DHCP process within their stacks. However, no such DHCP process is shown in the Host CPE stack – hence there is no DHCP process carried out between Host CPE and Cable Modem taught, suggested or implied by fig. 3-3, which the Examiner relies upon for the present rejection. As a result, all rejections fall apart in view of the Examiner's reliance on an erroneous interpretation of DOCSIS for all rejections. The fact is that the Cable Modem shown in fig. 3.3 of DOCSIS has no DHCP server as alleged.

- The DHCP process described in DOCSIS is between the Cable Modem as a DHCP <u>client</u> and a network DHCP <u>server</u> (CMTS) as illustrated above. The DOCSIS document is silent as to how or if the STB (CPE) learns the IP address of the cable modem.

- The DOCSIS document does not disclose a DHCP "server", only a DHCP process – in context it has to be a DHCP "client" which requests and as a result obtains its IP address from the network DHCP server (CMTS).

- The DOCSIS document at Page 9 section 1.1 and related teachings only require that certain communication be transparent from network to CPE, but fails to specify how (or if) the CPE learns the IP address of the cable modem (DHCP client).

- The DOCSIS document at Page 19, section 3.2.1 <u>specifically excludes</u> how messages are exchanged between Cable Modem and CPE, clearly indicating a failure in the document to teach that which the Examiner alleges is taught.

- DOCSIS section 3.1 requires that IP version 4 standard must be passed transparently through the CMCI, but does not require teach, suggest or even hint at the claimed method for broadcasting discovery packets to the CPE, or any other mechanism for the CPE to determine the Cable Modem's IP address.

- Appellant agrees with the Examiner that both Lim and DOCSIS fail to disclose periodically broadcasting a discovery packet, etc. as stated on the first full paragraph of page 4.

The Office Action, at the paragraph spanning pages 3 and 4, asserts that the combination of Lim with DOCSIS would be obvious – such combination including using an internal DHCP server in the modem. It is noted that Appellants claims require no such DHCP server in the Cable Modem. It is further noted, per the above, that the Cable Modem contains no DHCP server. If a DHCP <u>server</u> were situated in the Cable Modem it would seem that it would be used to provide an IP address to the STB (CPE), not vise versa, since it is the function of a DHCP server to provide IP addresses to a client. Recall that the present claims are directed at the Cable Modem informing the STB of its own address without regard for how such address was assigned.

The DHCP Reference:

It is first of all noted that the failure of the DOCSIS document to teach or suggest that which is asserted to be taught renders all rejections fatally flawed. That notwithstanding, the Office Action essentially asserts (to paraphrase) that operation in the "RENEWING" state teaches a mechanism for learning the IP address which taken in combination with the Lim and DOCSIS references render the claims obvious. Appellant submits the following:

- According to the DHCP reference, to renew a lease the client device already has to have a lease and thus has to already know its IP address. The Board's attention is directed to the DHCP reference at page 32. Note that for a DHCPREQUEST during the RENEWING state that "ciaddr" = the client's ID <u>must</u> form a part of the request. Acceptance of renewing the lease prompts an ACK type of response which does not appear to contain the client's address.

- It is further noted that the claims require <u>periodic</u> broadcast of a discovery packet from Cable Modem to STB. As shown in Fig. 2 of Appellant's application, this occurs at a periodic rate (shown as ΔT in this figure) without regard for any message from the STB. In the RENEWING state, the DHCPREQUEST message is from a DHCP client (with an address that is presumed correct by the DHCP server) to the DHCP server. The processes simply do not resemble one another in any significant way.

- Note that claim 1, for example, uses the terms "learn" and "ascertaining", whereas the renewing state requires that there be a DHCPREQUEST which already contains the IP address.

- Although the RENEWING state can result in a reassignment of the IP address, such a reassignment is of the address of the Cable Modem – the reference remains <u>silent on how or if</u> an address is communicated to the STB (CPE).

- Again, as noted above, once the teachings of the DOCSIS reference are properly interpreted, the DHCP reference becomes irrelevant.

The Slezak Reference:

The Slezak reference is used in the limited capacity of showing a cable modem connected to a STB and appears to be otherwise irrelevant in that there is no teaching of any process whatsoever for a STB to learn the IP address of the Cable Modem.

The Proposed Combination:

The Office Action appears to suggest that the teachings of the above art can be combined to achieve the claimed result by incorporating a DHCP server into the Cable Modem, with the claims reading on the scenario of the RENEWING state. However, it is noted that a DHCP server in the Cable Modem would be charged with assigning DHCP clients with IP addresses. This would require addition of a DHCP client within the STB (CPE), and would not accomplish the end result asserted to be inherent. In the proposed scenario, the CPE would be assigned an IP address of its own, but as far as can be determined the CPE would still not have a way to determine the IP address of the Cable Modem. Hence, the reasoning is flawed and fails to

produce the claimed result - the proposed combination simply does not perform in the manner claimed, and leaves claim features unaddressed.

Additionally, it is noted that in the RENEWING state, the proposed combination would call for the STB (CPE) to send DHCP request messages to the Cable Modem. Any response would involve an ACK, a NAK or a reassignment of the STB's (CPE's) IP address, not periodic transmission of a Discovery packet for an IP address already known by the Cable Modem. Basically, the proposed mechanism not only fails to meet the claim features but simply doesn't even provide an equivalent function - the proposed combination simply does not perform in the manner claimed and leaves claim features unaddressed.

It is further noted that the DOCSIS reference has been erroneously interpreted, as explained above, and fails to provide the teachings asserted in the Office Action. For this reason alone, all of the rejections of the present Office Action are clearly improper and fail to establish unpatentability.

It is additionally noted that in the network embodiment of the cited art, use of the claimed Discovery packet periodically broadcast to a broadcast address might have multiple recipients. Moreover, such transmissions would create unnecessary data congestion for no apparent purpose. That being the case, modification of the teachings of DHCP to a process resembling those claimed simply does not seem to make sense, and might destroy the function or at least the usefulness of DHCP. At a minimum, such modifications would radically modify the normal operation of DHCP. Such changes to the operation of DHCP are prohibited when attempting to establish *prima facie* obviousness (MPEP 2143.01 I, V and VI).

It is further noted that the DHCP document (last paragraph of page 2) explicitly discourages devices from acting as DHCP servers, except where explicitly designated by a system administrator. Hence, at least the DHCP document explicitly teaches away from the proposed modification/combination (MPEP 2143.01 I and MPEP 2141.02 VI).

Particularly regarding the claim features, each of above claims (using claim 1 as illustrative without intent to impose any limitations on any claim) calls for a method of enabling the Main Circuit Board to determine the IP address of the modem. The proposed combination appears to fail to provide this function.

The claims further call for periodically broadcasting a Discovery Packet over the interconnection from the modem to the Main Circuit Board, by addressing the Discovery Packet to a broadcast address that can be received by the Main Circuit Board, the Discovery Packet comprising at least the IP address of the modem in order to permit the Main Circuit Board to learn the modem's IP address. No such periodic broadcast to a broadcast address is taught, suggested or even hinted at individually or by the combination of references. All claim features must be considered in evaluating the invention as a whole, and the present Office Action clearly appears to fall short of considering all claim features (MPEP 2143, MPEP 2141 II and MPEP 2141.02 I)

Certain of the claims further call for monitoring the interconnection for receipt of broadcast Discovery Packets addressed to the broadcast address. No such monitoring function is taught or suggested individually or by the combination of references.

Certain of the claims further call for receiving the broadcast Discovery Packet addressed to the broadcast address at the Main Circuit Board from the modem over the interconnection, and ascertaining the IP address of the modem from the broadcast Discovery Packet. No such ascertaining function using the Discovery Packet received at the broadcast address is taught or suggested individually or by the combination of references.

The Office Action provides the reasoning of "conforming to the established DOCSIS standard" as reason for combining Lim and DOCSIS. Clearly, this motivation is flawed since DOCSIS makes no requirement that a Cable Modem include a DHCP server, and in fact, 1) DOCSIS teaches against including a DHCP server in the Cable Modem, and 2) if one were included, it would not provide the function alleged.

In view of these deficiencies it is submitted that *prima facie* obviousness has not been established as explained above for at least the following reasons (with supporting MPEP citations provided above):

- all claim features have not been properly considered and met by the proposed combination;
- there is no showing that Lim's alleged inherent teachings are in fact inherent;
- the interpretation of the DOCSIS reference is technically flawed;

- the proposed combination would not work in the manner of Appellant's claimed invention;

- there is a clear teaching away from the combination;

- the DHCP modification dramatically alters its fundamental mechanism of operation and appears to destroy its function;

- there is no suggestion to make the non-functional combination;

- although four references are combined, they still fall short of the claimed combination; and

- all dependent claims (including those not listed above) are allowable as dependent upon allowable base claims or claims.

Hence, despite the need to combine four references (and use Official Notice in connection with certain claims) the Office Action fails to establish *prima facie* obviousness. Reversal of the present rejection and allowance of claim Group 1 are respectfully requested.

(For the Board's convenience, Appellant further notes that the reasoning used in the Office Action for rejection of all claims is based in part upon the same combination of at least upon Lim in view of DOCSIS and DHCP using the same reasoning. Accordingly, *prima facie* obviousness has clearly not been established for _any_ of the claims.)

Group 2

Regarding the rejection of claims 14 and 29, the above arguments relating to Group 1 are equally applicable to these claims and are adequate to overcome the rejection. In addition, it is noted that the assertion that the processor being separate is inherent is simply not true. The requirement for establishing inherency is noted above. While a separate control processor is one embodiment, a Main Circuit board based control processor which controls operation of the modem is also a viable alternative. The modem and Main Circuit Board being separate devices does not inherently necessitate that the Main Circuit Board cannot exercise control via a control processor on the modem. Reversal of the rejection and allowance of claim Group 2 are respectfully requested.

Group 3

Regarding the rejection of claims 15, 74 and 89, the above arguments relating to Group 1 are equally applicable to these claims and are adequate to overcome the rejection. Moreover, although the art may disclose UDP, none of the art teaches or suggests a Discovery Packet as taught and claimed. Hence, none of the art suggests conveyance of such packet using UDP. Reversal of the rejection and allowance of claim Group 3 are respectfully requested.

Group 4

Regarding the rejection of claim 32, the above arguments relating to Group 1 are equally applicable to this claim and are adequate to overcome the rejection. Additionally, the Office Action asserts that a programmed processor in the modem is inherent in order to periodically transmit a discovery packet and no other means is available to do so. The rules for inherency are set forth above. This is clearly an erroneous assertion, since (for example without intent to impose limitations) a hardware state machine can readily be devised to carry out such functions, hence there can be no inherency. Claim 32 is intended to read more specifically upon embodiments where a programmed processor is used. Under the doctrine of claim differentiation, its parent claims read upon more, and the specification contemplates such at page 13 starting at line 12. Reversal of the rejection and allowance of claim Group 4 are respectfully requested.

Group 5

Regarding the rejection of claims 7, 9, 23, 25, 26, 64, and 82-84, the above arguments relating to Group 1 are equally applicable to these claims and are adequate to overcome the rejection. However, additionally, while Koperda may teach providing status information, there remains no teaching or suggestion of a Discovery Packet and providing status information as a part thereof. Reversal by the Board and allowance of claim Group 5 are respectfully requested.

Group 6

Regarding claims 8, 10, 24 and 65, the above arguments relating to Groups 1 and 5 are equally applicable to these claims and are adequate to overcome the rejection. Appellant's position as to the extensive use of Official Notice in this case is of record and is reiterated above. Appellant notes that while encryption may be well known, there is no teaching or suggestion of record, including the Examiner's Official Notice, for any reason for encryption of a status code transmitted from a Cable Modem to an attached Main Circuit Board via a periodically transmitted Discovery packet addressed to a broadcast address. Reversal by the Board and allowance of claim Group 6 are respectfully requested.

Group 7

Regarding the rejection of claims 82-85, the above arguments relating to Groups 1 and 5 are equally applicable to these claims and are adequate to overcome the rejection. Additionally, while Koperda may teach providing status information, there remains no teaching or suggestion of a Discovery Packet and providing status information as a part thereof. Additionally, there remains no teaching or suggestion of providing encrypted status information in a Discovery Packet as described and claimed. Reversal by the Board and allowance of claim Group 7 are respectfully requested.

Group 8

Regarding the rejection of claims 11 and 86, the above arguments relating to Groups 1 and 5 are equally applicable to this claim and are adequate to overcome the rejection. However, additionally, while Koperda may teach providing status information, there remains no teaching or suggestion of broadcast of a Discovery Packet and providing status information as a part thereof and display of such status information on a set-top box display as taught and claimed. It is further noted that a total of **Six References** are now being combined in order to produce a rejection, and the combination still falls short. Appellant submits that the need to combine such a large number of references (large now and growing as the rejections proceed) is in and of itself indicative of non-obviousness. This is particularly the case when the main references continue to

fail to provide adequate teaching to support the asserted rejection. Reversal by the Board and allowance of claim Group 8 are respectfully requested.

Group 9

Regarding the rejection of claims 4, 6, 16, 20, 22, 61, 63, 79 and 81, the above arguments relating to Groups 1 and 5 are equally applicable to these claims and are adequate to overcome the rejection. It is noted that the Blumenau reference is used for its asserted disclosure of encryption of authentication codes. However, there is no teaching or suggestion in the cited art of using encrypted authentication codes which are carried in a periodically transmitted Discovery Packet as taught and claimed.

Blumenau relates to providing data management in a storage system and appears to be non-analogous. Appellant sees no reason why one of ordinary skill in the art would look to Blumenau for solutions to the problems being addressed by Appellant.

Also, the only reason given for making a modification per Blumenau is to "enhance security." This amounts to a broad conclusory reason about generalized advantages. "Conclusory statemements, of generalized advantages and convenient assumptions about skilled artisans ... are inadequate to support motivation ..." In re Beasley, Civ. App. 04-1225, slip op. at 6-7, 2004 WL 2793170 (Fed. Cir. Dec. 7, 2004, unpublished). More is required than a statement that the combination would "enhance security" without evidence, that it would have been obvious to modify the primary references to bring about this function. In re Dembiczak, 175 F.3D 994, 50 U.S.P.Q.2d 1614 (Fed. Cir. 1999) (the range of sources available does not diminish the requirement for **actual evidence**, and "broad conclusory statements regarding the teaching of multiple references, standing alone, are not evidence"). In view of the failure of the proposed combination of Group 1, it appears clear that there is no motivation to further combine Blumenau. Reversal by the Board and allowance of claim Group 9 are respectfully requested.

Group 10

Regarding the rejection of claim 31, the above arguments relating to Group 1 are equally applicable to this claim and are adequate to overcome the rejection. It is noted that the Rahamim

reference is used for its asserted disclosure of display of modem status on a display connected to a host computer. However, there is no teaching or suggestion in the cited art that the displayed status information is derived from status codes which are carried in a periodically transmitted Discovery Packet as taught and claimed. Reversal by the Board and allowance of claim Group 10 are respectfully requested.

Group 11

Regarding the rejection of claim 33, the above arguments relating to Group 1 are equally applicable to this claim and are adequate to overcome the rejection. It is noted that the Blumenau reference is used for its asserted disclosure of encryption of authentication codes and using identifier information to verify individual devices (separate network interface modules). It is also noted that the Lee reference is used for its asserted disclosure of multiple modules in a Set Top Box. There is no teaching or suggestion in the cited art of using encrypted authentication codes which are carried in a periodically transmitted Discovery Packet in a Set Top Box between a Main Circuit board and a Cable Modem module as taught and claimed. It is also noted that **Six References** are again combined to make the present rejection. Appellant again submits that the need to combine such a large number of references is in and of itself indicative of non-obviousness. Reversal by the Board and allowance of claim Group 11 are respectfully requested.

Group 12

Regarding the rejection of claims 34-37 and 91, the above remarks relating to Group 1 are equally applicable and are adequate to overcome this rejection. Appellant respectfully objects to and strongly protests the use of **TEN REFERENCES** in combination to formulate this rejection. The use of such a large number of references in order to justify a rejection is a clear indication of disregard for proper protocol in establishing a rejection. Clearly, Appellant's application is being rejected at all cost.

The absurdity of the large numbers of references used in the present rejection notwithstanding, the above arguments relating to the combination of Lim, DOCSIS, DHCP and Slezak are equally applicable to these claims and are adequate to overcome the rejection. The

assertion that a Main Circuit board monitoring an interconnection for communication to a broadcast address is inherent is not supported by any art of record. Moreover, the assertion is incorrect since a main circuit board could equally well have a designated address for communication from any given device or simply monitor unaddressed communication.

Further, the remarks above related to Blumenau, Koperda, Rahamim are also equally relevant and further indicative of non-obviousness. The DeBettencourt reference is used to indicate that broadcast of information every 30 seconds is known, but there is no teaching or suggestion that this is an appropriate time for transmission of a Discovery Packet as claimed, and in fact DeBettencourt is from a non-analogous art area.

DeBettencourt relates to a system for serving web pages. The Office Action only asserts without support that this reference is from an analogous art. Appellant sees no reason why one of ordinary skill in the art would look to this reference for teachings relating to the problem being addressed, and submits that DeBettencourt is non-analogous.

The Caputo reference is used to teach naming of modems with 10 character strings, but there is no teaching or suggestion of use of such a name as part of a periodically broadcast Discovery Packet as claimed.

The Bernardini reference is used to teach use of four byte integers, but is irrelevant and non-analogous to the present invention. Bernardini is related to HDLC frame transmission on a TDM / PCM type link. The Office Action only asserts without support that this reference is from an analogous art. Appellant sees no reason why one of ordinary skill in the art would look to this reference for teachings relating to the problem being addressed, and submits that Bernardini is also non-analogous.

In short, in order for the present rejection to be viable, it requires a combination of **TEN REFERENCES**, for which there must be a suggestion in the art to modify and combine, inherency of certain features, and nearly nine pages of explanation asserting at least nine instances where modifications would be "obvious" to cobble together the rejection. It is submitted that the extremes that this rejection takes are indicative of (in fact, bordering on proof of) non-obviousness rather than obviousness. In fact, the present rejection is a stellar example of clear hindsight reconstruction. Such a rejection is clearly beyond all reason, far beyond the

requirements of the statutes, rules, and case law and clearly cannot be sustained. Reversal by the Board and allowance of claim Group 12 are respectfully requested.

Group 13

Regarding the rejection of claims 66-68, 72 and 73, the above arguments relating to Group 1 are equally applicable to this claim and are adequate to overcome the rejection. The Lee reference is used for its asserted disclosure of multiple addressable modules in a Set Top Box. However, this does nothing to overcome the failure to teach or suggest a periodically transmitted Discovery Packet from a module to the main circuit board in a Set Top Box as taught and claimed. The Office Action's asserted motivation for making the combination with Lee is clearly lacking in that it again only makes what amounts to a broad conclusory reason of "increasing flexibility of the set top box". But, the Office Action fails to explain where the prior art provides the motivation to modify the primary references to utilize the teaching of Lee. That is, more is required than a statement that the combination would "increase flexibility of a set top box by allowing it to connect to another type of network using the network device", without evidence, that it would have been obvious to modify the primary references to bring about this function. In re Dembiczak, 175 F.3D 994, 50 U.S.P.Q.2d 1614 (Fed. Cir. 1999) (the range of sources available does not diminish the requirement for **actual evidence**, and "broad conclusory statements regarding the teaching of multiple references, standing alone, are not evidence"). Reversal by the Board and allowance of claim Group 13 are respectfully requested.

Group 14

Regarding the rejection of claim 69, the above arguments relating to Group 1 are equally applicable to this claim and are adequate to overcome the rejection. The Lee, Caputo and Blumenau references and the appropriateness of their use and combination are also discussed above and those discussions are equally applicable here. Moreover, it is noted that **SEVEN REFERENCES** are being combined to formulate this rejection. Appellant again notes that requiring such a large number of to justify a rejection (while still not meeting all claim

limitations) is a clear indication that the claim is in fact non-obvious. Reconsideration and allowance of claim Group 14 are respectfully requested.

Group 15

Regarding the rejection of claims 70 and 71, the above arguments relating to Group 1 above are equally applicable to these claims and are adequate to overcome the rejection. The above discussions of Lee, Caputo, Blumenau and Koperda and the appropriateness of their respective use and combination with the main references are also equally applicable. Moreover, **EIGHT REFERENCES** plus **OFFICIAL NOTICE** are being combined to make the present rejection. It is again submitted that this is more of an indication of non-obviousness than a *prima facie* showing of obviousness. Appellant's position on the extensive use of Official Notice is of record. Reversal of the rejections and allowance by the Board of claim Group 15 are respectfully requested.

Conclusions

The present Office Action fails on many levels to establish *prima facie* obviousness. The DOCSIS reference is interpreted in a technically incorrect manner that in and of itself is adequate to establish that all rejections are fatally flawed. The proposed combinations do not result in Appellant's claimed invention and there is inadequate motivation to make any of the proposed combinations. For at least the reasons noted above, full reversal of the Examiner by the Board and allowance of all claims on appeal are respectfully requested.

The undersigned can be reached by telephone if any Board member wishes clarification of any matter discussed herein.

Respectfully submitted,

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CLAIMS APPENDIX

1.   In a Set-Top Box configured with a modem and a Main Circuit Board where the Main Circuit Board is connected to the modem via an interconnection, a method of enabling the Main Circuit Board to determine the IP address of the modem, comprising:

at the modem:

periodically broadcasting a Discovery Packet over the interconnection from the modem to the Main Circuit Board, by addressing the Discovery Packet to a broadcast address that can be received by the Main Circuit Board, the Discovery Packet comprising at least the IP address of the modem in order to permit the Main Circuit Board to learn the modem's IP address; and

at the Main Circuit Board:

monitoring the interconnection for receipt of broadcast Discovery Packets addressed to the broadcast address;

receiving the broadcast Discovery Packet addressed to the broadcast address at the Main Circuit Board from the modem over the interconnection; and

ascertaining the IP address of the modem from the broadcast Discovery Packet.

2.   The method according to claim 1, wherein the Discovery Packet further comprises an authentication code, and wherein the Main Circuit Board, upon receiving the Discovery Packet inspects the authentication code to assure that the IP address in the Discovery Packet originated at the modem.

3.   The method according to claim 2, wherein the authentication code comprises a multiple character ascii character string.

4.   The method according to claim 3, wherein the authentication code is encrypted.

5.   The method according to claim 2, wherein the authentication code comprises a 10 character ascii character string.

6. The method according to claim 5, wherein the authentication code is encrypted.

7. The method according to claim 1, wherein the Discovery Packet further comprises a status code indicative of a running status of the modem.

8. The method according to claim 7, wherein the status code is encrypted.

9. The method according to claim 7, wherein the status code comprises a four byte integer code representing the running status of the modem.

10. The method according to claim 9, wherein the status code is encrypted.

11. The method according to claim 7, further comprising displaying a status of the modem on a display connected to the Main Circuit Board.

12. The method according to claim 1, wherein the Discovery Packet is transmitted approximately every 30 seconds.

13. The method according to claim 1, wherein the modem comprises wherein the modem comprises one of a Cable Modem, a DSL modem and a Satellite modem.

14. The method according to claim 1, wherein the modem further includes a processor that controls functions of the modem and wherein the processor is a device separate from any processor device residing on the Main Circuit Board.

15. The method according to claim 1, wherein the Discovery Packet is communicated using User Datagram Protocol.

16. The method according to claim 2, further comprising:

at a network device:

periodically broadcasting a Discovery Packet over an interconnection from the network device to the Main Circuit Board, by addressing the Discovery Packet to the broadcast address, the Discovery Packet comprising at least the IP address of the network device and a signature of the network device; and

at the Main Circuit Board:

monitoring the interconnection for broadcast Discovery Packets addressed to the broadcast address;

receiving the broadcast Discovery Packet addressed to the Main Circuit Board from the network device ; and

ascertaining the IP address of the network device from the broadcast Discovery Packet after authenticating the network device from the network device's signature.

17.   A Set-Top Box, comprising:

a modem;

a Main Circuit Board interconnected to the modem via an interconnection;

means, residing within said modem, for periodically transmitting a Discovery Packet from said modem to the Main Circuit Board by addressing the Discovery Packet to a broadcast address monitored by a programmed processor residing on said Main Circuit Board via the interconnection; and

wherein the Discovery Packet comprises at least an IP address of the modem in order to permit the Main Circuit Board to learn the modem's IP address.

18.   The apparatus according to claim 17, wherein the Discovery Packet further comprises an authentication code, and wherein the Main Circuit Board, upon receiving the Discovery Packet inspects the authentication code to assure that the IP address in the Discovery Packet originated at the modem.

19. The apparatus according to claim 18, wherein the authentication code comprises a multiple character ascii character string.

20. The apparatus according to claim 19, wherein the authentication code is encrypted.

21. The apparatus according to claim 18, wherein the authentication code comprises a ten character ascii character string.

22. The apparatus according to claim 21, wherein the authentication code is encrypted.

23. The apparatus according to claim 17, wherein the Discovery Packet further comprises a status code indicative of a running status of the modem.

24. The apparatus according to claim 23, wherein the status code is encrypted.

25. The apparatus according to claim 23, wherein the status code comprises a multiple byte integer code representing the running status of the modem.

26. The apparatus according to claim 23, wherein the status code comprises a four byte integer code representing the running status of the modem.

27. The apparatus according to claim 17, wherein the Discovery Packet is transmitted approximately every 30 seconds.

28. The apparatus according to claim 17, wherein the modem comprises one of a Cable Modem, a DSL modem and a Satellite modem.

29. The apparatus according to claim 17, wherein the modem further includes a processor that controls functions of the modem and wherein the processor is a device separate from the programmed processor residing on the Main Circuit Board.

30. The apparatus according to claim 17, wherein the interconnection comprises one of a universal serial bus (USB) interconnection, an Ethernet interconnection and a PCI bus interconnection.

31. The apparatus according to claim 17, further comprising a display coupled to the Main Circuit Board.

32. The apparatus according to claim 17, wherein the means for periodically transmitting a Discovery Packet comprises a programmed processor forming a part of the modem, and which is distinct from any programmed processor residing on the Main Circuit Board.

33. The apparatus according to claim 18, further comprising:
    a network device interconnected with the Main Circuit Board using an interconnection;
    means, residing within said network device for periodically transmitting a Discovery Packet from said network device to said Main Circuit Board over said interconnection by addressing the Discovery Packet to a broadcast address monitored by the Main Circuit Board; and
    wherein the Discovery Packet comprises at least an IP address of the network device and a signature, wherein the Main Circuit Board distinguishes between the modem and the network device by the signature.

34. A Set-Top Box, comprising:
    a modem;

a Main Circuit Board having a first processor and interconnected to the modem via an interconnection, wherein the Main Circuit Board monitors the interconnection for packets addressed to a broadcast address;

a second programmed processor, residing within said modem, for transmitting a Discovery Packet from said modem to the broadcast address monitored by said Main Circuit Board via said interconnection at intervals of approximately 30 seconds;

wherein the Discovery Packet comprises an IP address of the modem, and an encrypted ten character ascii authentication code, and wherein the Main Circuit Board, upon receiving the Discovery Packet inspects the authentication code to assure that the IP address in the Discovery Packet originated at the modem;

and wherein the Discovery Packet further comprises a four byte integer status code indicative of a running status of the modem; and

a display, coupled to the Main Circuit Board, displaying the status of the modem determined by the Main Circuit Board by reading the four byte integer status code of the Discovery Packet.

35.   The apparatus according to claim 34, wherein the modem comprises one of a Cable Modem, a DSL modem and a satellite modem.

36.   The apparatus according to claim 34, wherein the Discovery Packet uses User Datagram Protocol.

37.   The apparatus according to claim 34, wherein the interconnection comprises one of a universal serial bus (USB) interconnection, an Ethernet interconnection and a PCI bus interconnection.

Claims 38. – 57. are withdrawn as a result of a restriction requirement.

58.   A Set-Top Box, comprising:

a managed component;

a Main Circuit Board interconnected to the managed component via an interconnection;

a Main Circuit Board interconnected to the modem via an interconnection;

means, residing within said managed component, for periodically transmitting a Discovery Packet from said managed component to the Main Circuit Board by addressing the Discovery Packet to a broadcast address monitored by said Main Circuit Board via the interconnection; and

wherein the Discovery Packet comprises at least an IP address of the managed component in order to permit the Main Circuit Board to learn the managed component's IP address.

59.   The apparatus according to claim 58, wherein the Discovery Packet further comprises an authentication code, and wherein the Main Circuit Board, upon receiving the Discovery Packet inspects the authentication code to assure that the IP address in the Discovery Packet originated at the managed component.

60.   The apparatus according to claim 59, wherein the authentication code comprises a multiple character ascii character string.

61.   The apparatus according to claim 59, wherein the authentication code is encrypted.

62.   The apparatus according to claim 59, wherein the authentication code comprises a ten character ascii character string.

63.   The apparatus according to claim 62, wherein the authentication code is encrypted.

64.   The apparatus according to claim 58, wherein the Discovery Packet further comprises a status code indicative of a running status of the managed component.

65.   The apparatus according to claim 64, wherein the status code is encrypted.

66.   A Set-Top Box, comprising:

first and second managed components;

a Main Circuit Board interconnected to the first and second managed components via an interconnection;

means, residing within each of said first and second managed components, for periodically transmitting a Discovery Packet from each said managed component to said Main Circuit Board by addressing the Discovery Packet to a broadcast address monitored by said Main Circuit Board via the interconnection; and

wherein the Discovery Packet comprises at least an IP address of the managed component from which it was transmitted in order to permit the Main Circuit Board to learn each managed component's IP address.

67.   The apparatus according to claim 66, wherein the Discovery Packet further comprises an authentication code, and wherein the Main Circuit Board, upon receiving the Discovery Packet inspects the authentication code to determine which of the first and second managed components that the IP address in the Discovery Packet corresponds to.

68.   The apparatus according to claim 67, wherein the authentication code comprises a multiple character ascii character string.

69.   The apparatus according to claim 67, wherein the authentication code is encrypted.

70.   The apparatus according to claim 69, wherein the Discovery Packet further comprises a status code indicative of a running status of the managed component transmitting the discovery packet.

71.   The apparatus according to claim 70, wherein the status code is encrypted.

72.   The apparatus according to claim 66, wherein the Discovery Packet uses User Datagram Protocol.

73.   The apparatus according to claim 66, wherein the interconnection comprises one of a universal serial bus (USB) interconnection, an Ethernet interconnection and a PCI bus interconnection.

74.   The apparatus according to claim 58, wherein the Discovery Packet uses User Datagram Protocol.

75.   The apparatus according to claim 58, wherein the interconnection comprises one of a universal serial bus (USB) interconnection, an Ethernet interconnection and a PCI bus interconnection.

76.   In a Set-Top Box, a method comprising:
        providing a modem having a first internal programmed processor;
        providing a Main Circuit Board having a second programmed processor, said first and second programmed processors being separate physical devices;
        the modem being connected to the Main Circuit Board via an interface,
        at the modem:
periodically broadcasting a Discovery Packet from the modem to the Main Circuit Board over the interface, wherein the Discovery Packet is addressed to a broadcast address that can be received by the Main Circuit Board, the Discovery Packet comprising at least the IP address of the modem in order to permit the Main Circuit Board to learn the modem's IP address; and
        at the Main Circuit Board:
monitoring the interface for receipt of broadcast Discovery Packets addressed to the broadcast address;

receiving the broadcast Discovery Packet addressed to the broadcast address at the Main Circuit Board from the modem over the interface; and

ascertaining the IP address of the modem from the broadcast Discovery Packet.

77.   The method according to claim 76, wherein the Discovery Packet further comprises an authentication code, and wherein the Main Circuit Board, upon receiving the Discovery Packet inspects the authentication code to assure that the IP address in the Discovery Packet originated at the modem.

78.   The method according to claim 77, wherein the authentication code comprises a multiple character ascii character string.

79.   The method according to claim 77, wherein the authentication code is encrypted.

80.   The method according to claim 77, wherein the authentication code comprises a 10 character ascii character string.

81.   The method according to claim 80, wherein the authentication code is encrypted.

82.   The method according to claim 80, wherein the Discovery Packet further comprises a status code indicative of a running status of the modem.

83.   The method according to claim 82, wherein the status code is encrypted.

84.   The method according to claim 82, wherein the status code comprises a four byte integer code representing the running status of the modem.

85.   The method according to claim 84, wherein the status code is encrypted.

86.   The method according to claim 82, further comprising displaying a status of the modem on a display connected to the Main Circuit Board.

87.   The method according to claim 76, wherein the Discovery Packet is transmitted approximately every 30 seconds.

88.   The method according to claim 76, wherein the modem comprises wherein the modem comprises one of a Cable Modem, a DSL modem and a Satellite modem.

89.   The method according to claim 76, wherein the Discovery Packet is communicated using User Datagram Protocol.

90.   A Set-Top Box, comprising:
        a modem;
        a Main Circuit Board interconnected to the modem via an interconnection;
        means, residing within said modem, for periodically transmitting a Discovery Packet from said modem to said Main Circuit Board, wherein the means for periodically transmitting a Discovery Packet comprises a programmed processor; and
        wherein the Discovery Packet comprises at least an IP address of the modem.

91.   A Set-Top Box, comprising:
        a modem;
        a Main Circuit Board interconnected to the modem via an interconnection;
        a programmed processor, residing within said modem, for transmitting a Discovery Packet from said modem to said Main Circuit Board at intervals of approximately 30 seconds;
        wherein the Discovery Packet comprises an IP address of the modem, and an encrypted ten character ascii authentication code, and wherein the Main Circuit Board, upon receiving the Discovery Packet inspects the authentication code to assure that the IP address in the Discovery Packet originated at the modem;

and wherein the Discovery Packet further comprises a four byte integer status code indicative of a running status of the modem; and

a display, coupled to the Main Circuit Board, displaying the status of the modem.

EVIDENCE APPENDIX

Not Applicable.

RELATED PROCEEDINGS APPENDIX

Not Applicable.